REMARKS

Claims 1-16 were examined and reported in the Office Action. Claims 1-16 are rejected. Claims 1, 8 and 15 are amended. Claims 1-16 remain.

Applicant requests reconsideration of the application in view of the following remarks.

I. 35 U.S.C. § 102(b)

It is asserted in the Office Action that claims 1-14 are rejected under 35 U.S.C. § 102(b), as being anticipated by U. S. Patent No. 5,539,763 issued to Takemi et al ("Takemi"). Applicant respectfully traverses the aforementioned rejection for the following reasons.

According to MPEP §2131,

> "'[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' (Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). 'The identical invention must be shown in as complete detail as is contained in the ... claim.' (Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, *i.e.*, identity of terminology is not required. (In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990))."

Applicant's amended claim 1 contains the limitations of

> a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of the passive optical waveguide, the light deflector integrated with a laser diode, wherein a refractive index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector by the passive optical waveguide by applying a current or an electrical field to a particular

> portion of the light deflector having the predetermined shape, and the light deflector and the laser diode made of a same material.

Applicant's amended claim 8 contains the limitations of

> a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector having an electrode formed to have a predetermined shape by patterning an upper portion of the upper cladding layer of the passive optical waveguide, the light deflector integrated with a laser diode made of the same material as the light deflector, wherein a reflective index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector by the passive optical waveguide by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

That is, Applicant's claimed invention asserts an integrated light deflector located at an upper portion of the waveguide and having an integrated light source. The light source and the light deflector are made of the same material. The refractive index of the light deflector is modified when a current or electrical field is applied to a particular portion of the light deflector having a predetermined shape. The core has a high band gap so guided light beams are not absorbed. Tuning speed is, therefore, reduced. Reliability is increased over the prior art; size is minimized and manufacturing costs are reduced over the prior art.

Takemi discloses an integrated semiconductor laser and light modulator. In Takemi, laser light passes through a light modulator region without being absorbed by a light absorption layer when no voltage is applied to the light modulator. When voltage is applied to the light modulator, the laser light is absorbed and disappears in the modulator. (Takemi, column 16, lines 30-45). Applicant notes that absorbing light so that it disappears is different than deflecting the propagation direction of the light beam.

Further, Takemi does not teach, disclose or suggest a light deflector. In fact, nowhere in Takemi is the term "deflector" nor "deflect" used. Additionally, Takemi does not teach, disclose or suggest that a light deflector formed by patterning the upper

cladding layer in a predetermined shape at an upper portion of the passive optical waveguide. That is, Applicant's claimed light deflector is disposed at the upper portion of the waveguide.

Moreover, Takemi does not teach, disclose or suggest "the light deflector integrated with a laser diode, wherein a refractive index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector by the passive optical waveguide by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape, and the light deflector and the laser diode made of a same material."

Therefore, since Takemi does not disclose, teach or suggest all of Applicant's amended claims 1 and 8 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Takemi. Thus, Applicant's amended claims 1 and 8 are not anticipated by Takemi. Additionally, the claims that directly or indirectly depend on claims 1 and 8, namely claims 2-7, and 9-14, respectively, are also not anticipated by Takemi for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claims 1-14 are respectfully requested.

II. 35 U.S.C. § 103(a)

It is asserted in the Office Action that claims 15-16 are rejected in the Office Action under 35 U.S.C. § 103(a), as being unpatentable over Takemi et al. in view of U.S. Patent No. 6,580,740 issued to Funabashi et al ("Funabashi "). Applicant respectfully traverses the aforementioned rejection for the following reasons.

According to MPEP §2142 ,

> "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference

> teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Further, according to MPEP §2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." "*All words in a claim must be considered* in judging the patentability of that claim against the prior art." (In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970), emphasis added.)

Applicant's amended claim 15 contains the limitations of

> a light source with an integrated light deflector comprising a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals, an active area for generating the optical signals, and the light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of a predetermined area of the passive optical waveguide, the light source and the integrated light deflector are made of a same material; a collimator lens for collimating a light beam emergent from the light source; and a diffraction grating for changing a diffraction angle depending on a wavelength of the light beam through the collimator lens, wherein a propagation direction of the light beam guided to the deflector by the passive optical waveguide is changed by modifying a refractive index of the core under the predetermined shape by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

Similarly as asserted above regarding amended claims 1 and 8, Takemi does not teach, disclose or suggest "the light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of a predetermined area of the passive optical waveguide, the light source and the integrated light deflector are made of a same material; a collimator lens for collimating a light beam emergent from the light source; and a diffraction grating for changing a diffraction angle depending on a wavelength of the light beam through the collimator lens, wherein a propagation direction of the light beam guided to the deflector by the passive optical waveguide is

changed by modifying a refractive index of the core under the predetermined shape by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape."

Funabashi discloses a semiconductor device having an absorption layer to selectively absorb a portion of radiated light. Nowhere in Funabashi, however, is the term "deflector" or "deflect" used. Further, Funabashi does not teach, disclose or suggest "the light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of a predetermined area of the passive optical waveguide, the light source and the integrated light deflector are made of a same material; a collimator lens for collimating a light beam emergent from the light source; and a diffraction grating for changing a diffraction angle depending on a wavelength of the light beam through the collimator lens, wherein a propagation direction of the light beam guided to the deflector by the passive optical waveguide is changed by modifying a refractive index of the core under the predetermined shape by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape."

Therefore, even if the teachings of Takemi and Funabashi were combined the resulting device would still not teach, disclose or suggest all the limitations contained in Applicant's amended claim 15. Since neither Takemi, Funabashi, nor the combination of the two, teach, disclose or suggest all the limitations of Applicant's amended claim 15, as listed above, Applicant's amended claim 15 is not obvious over Takemi in view of Funabashi since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly depends from amended claim 15, namely claim 16, would also not be obvious over Takemi in view of Funabashi for the same reason.

Accordingly, withdrawal of the rejections under 35 U.S.C. §103(a) for claims 15-16 are respectfully requested.

CONCLUSION

In view of the foregoing, it is submitted that claims 1-16 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: August 26, 2005

By: _____
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on August 26, 2005.

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Jean Svoboda